CAN-BUS GPS CAR ALARM

USER MANUAL

(Model: TK218)

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Preface

TK218 GPS car alarm & tracking device is an advanced multifunctional product. It is an integration of Car alarm system +GPS tracker + Windows Closer + Remote Starter.

It has most functions of normal car alarm system, it also behaves as a precise GPS tracker. We adopt the latest technology of CAN-BUS and OBD-II interface in to the design, so the installation is very simple.

Read it Firstly:

Please read this manual thoroughly before you use the device; please keep it for future reference.

Attention:

(1) Please keep the device away from water, humidity, high temperature, heavy dust or strong magnetism.

(2) Please prepare a valid GSM SIM card in advance.

Warning:

We strongly suggest user let the professional car electrician to install the system.

I. Features & Functions

1. Deign with OBD connector, support all kinds of CAN-BUS;
2. Arm/disarm by SMS, or automatically <u>by car's original remote controller;</u>
3. <u>Lock/unlock the car door remotely</u> by telephone;
4. Automatic car <u>window closer</u> when arming;
5. Check the <u>car's real physical address(such as city name, street name..);</u>
6. Track by mobile SMS to get the latitude/longitude or the <u>Google map's URL;</u>
7. Track by SMS or by tracking platform via internet;
8. voice monitoring function;
9. Vibration alarm, door open alarm, engine on alarm & power failure alarm;
10. SOS button to call for help in case of emergency;
11. Geo-fence alarm (radius range: 1~99KM);
12. Over-speed alarm (speed range:1~255km/h);
13. Movement alarm, it will be activated automatically when system is armed;
14. <u>Mileage value is the same as car's odometer reading</u>
15. <u>Remote Start the engine or air conditioner by SMS</u>;(optional)
16. Stop the car safely by SMS/GPRS;
17. Built-in <u>AGPS</u> to get GPS signal faster,
18. <u>Central lock automation, when car speed >30Km/h, car door will be locked automatically;</u>
19. Inbuilt 4Mb data logger to store the offline GPS waypoints;
20. Built-in shock sensor for power saving & triggering alarm;
21. Built-in rechargeable backup battery; when the car battery is cut off or damaged, the built-in 500mAH backup battery can work for emergency check, and the system will send out power failure alert immediately.
22. Two kinds of location information; user can check the GPS latitude, longitude, speed, direction. If there is no GPS signal, user could also locate the car by GSM base station code.
23. <u>Plug & Play design</u>, easy installation;
24. <u>Good compatibility</u> with all kinds of vehicles from different manufacturers.

II. How to operate it

SMS Command Format

User can send SMS instruction to operate the tracker by any mobile phone, the format of the instruction is:

User Password (******) + Control Code(XXX)

The default user password is <u>111111</u>.

If the user password is changed, user should send the SMS instruction with the new user password instead of 111111.

XXX is the control code, all the letters must be all **capital letters** or small letters, any code mixed by two of them will be not available.

There is no space between the user password & the control instruction.

Authorize the Alarm-received Phone No.

SMS command: **111111*10 Mobile #1*20 Mobile #2***

In case of alarm, if user wants to get the alarm SMS from the tracker, he/she needs send the following SMS to program the tracker firstly, otherwise, the alert information can't be received correctly.

<u>Example</u>: User sends the SMS 111111*10 13922713571 *20 13711189059 * to the tracker's SIM card number, if there is any alarm, system will send SMS to both of these two mobiles. In case of SOS alarm, the system will only send alarm to the mobile #2

Arm/Disarm by Phone Calling or Original Remote Control

User could also use the 1st alarm-received mobile phone to call the tracker's SIM card number, so as to arm/disarm the system.

<u>Arm</u>: After hearing several ring tones, if the systems hang up the call automatically, and call back you, it means that the system is armed.

<u>Disarm</u>: After hearing several ring tones, if the system hangs up the call automatically, and don't call back you, it means that the system is disarmed.

If the car door is locked by original remote control, the system will automatically be armed, if the car door is unlocked by original remote control, the system will automatically disarmed.

Note:

(1) There is no communication fee for this operation, it is a very convenient way to arm & disarm the system.

(2)The SIM card inside the device must have the function of Caller ID Display.

(3) Only the 1st **alarm-received mobile phone** can realize this function.

Arm/Disarm the System by SMS

SMS command: **111111ARM**   (or **111111arm**)

This SMS instruction is used to arm the system

When the system is armed, the car door will be locked automatically, the movement alert is activated automatically. When the car moves, the alarm will be triggered.

SMS command: **111111DSM**   (or **111111dsm**)

This command is used to disarm the system & stop sending alert SMS. When the system is disarmed, the car door will be unlocked automatically

Change User Password

SMS command: **111111PSWnnnnnn**

This instruction is used to change the user password. The length of the user's password is 3~6 digits. Users are suggested to change to the new password in use.

Example:

User sends the SMS "111111PSW12345" to the system SIM card number, and gets the confirmed SMS "111111PSW12345" in 3 seconds. It means that the user password has been changed to 12345.

Remark: Please keep the password deep in mind if it is changed.

Check the Vehicle's Status

SMS command: **111111CHK**

This instruction is used to inquiry the vehicle's location & system's status.

The system will send back the SMS, includes the similar information, such as "Car is Armed……"

User could also use the 2nd alarm-received mobile phone to call the tracker's SIM card number, the tracker will hand up the calling & send back the location directly.

Check the Location by Google Map's URL

Command: **111111MAP**

User can use any mobile phone to send this command to tracker's SIM number, the tracker will automatically send back the SMS including the Google map's URL, user can use smart phone(be able to visit internet) to open the URL link and then the car's location will be showed on the Google map.
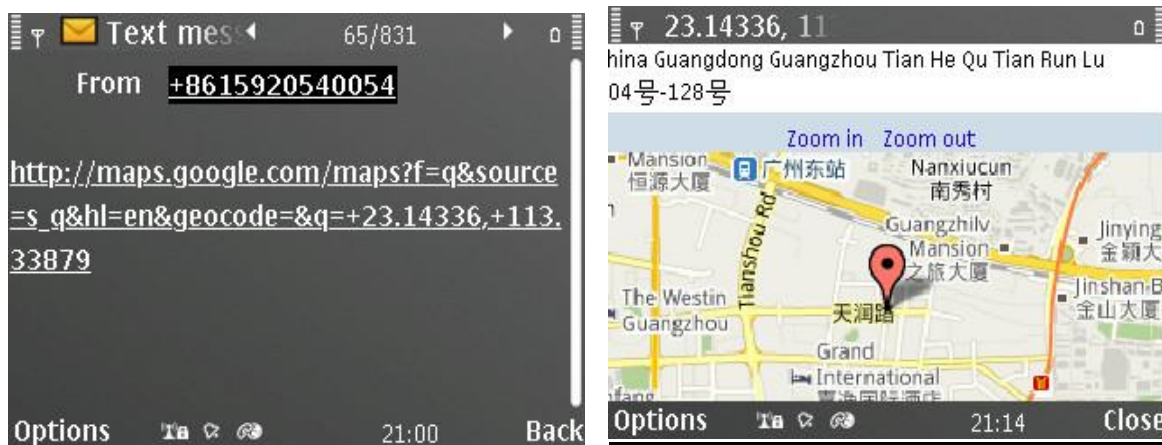
Note:

The SIM card inside the tracker must be activated with the service of caller's ID display.

Check the Real Physical Address

SMS command: **111111ADD**   (or **111111add**)

When user sends this SMS command to the tracker, the tracker will automatically send back the car's real physical address (such as city name, street name) to your mobile by SMS(it needs supports from the server).

Remark: (1) The GPRS data service of the tracker's SIM card must be activated, and the correct GPRS setting is needed (refer to the chapter of the setting of GPRS connection), user can set up the GPRS upload time interval to 0 so as to save the GPRS flow; (2) The physical address depends on the Google map's address information. If the place has very detailed information on Google map, then the physical address by SMS is

very detailed.

Stop the Car

SMS command: **111111STP**   (or **111111stp**)

This instruction is used to stop the car safely.

If car speed<30Km/h, the car will be stopped immediately.

If car speed>=30Km/h, the command will not be carried out unless the speed is lower than 30Km/h. In case of high speed, if user really wants to stop the car immediately, please send this 111111STP commands twice, and the car will be stopped immediately.

Attention:

It is very dangerous to stop the car when the vehicle is running at high speed. We do not take any responsibility to the consequence caused by this action.

Restore the Stopped Car to Normal Status

SMS command: **111111RES**

It is used to restore the car to normal status after being stopped.

Monitor the Voice around the Car

SMS command: **111111MON**

This instruction is used to monitor the voice around the car.

After sending out this SMS, the tracker will call back immediately, then, user can monitor the voice around the car upon picking up the call.

SMS command: **111111MON:Tel**

This instruction is used to program the phone number which is used for carrying out direct monitoring.

User uses this phone number to call the tracker, it will be connected automatically without driver's permission. By this way, user can monitor the voice inside the car directly.

Example: 111111MON:13922713571

Note: If the Tel is the same as the first alarm-received phone (111111*10 Mobile #1*20 Mobile #2*), then this telephone can only be used to carry out

direct monitoring, it can't realize the function of arm/disarm by calling any more.

Set up the Shock Sensor

Command: **111111SHK@**

Normal status, when shock sensor is activated, it will trigger the alarm immediately.

@=0, turn off shake sensor.

@=1, normal working mode(default setting).

Normal status, when sensor is activated, it will trigger the alarm immediately. It is the default setting

@=2, Time-delay working mode

Time-delay status, if the sensor is activated for 3 seconds continuously, it will trigger the alarm. This setting can avoid some false vibration alarm.

Mute-Arm the System

Command:

111111MUTE:0, to turn off mute alarm.(default setting)

111111MUTE:1, to turn on mute alarm.

when user turn on MUTE alarm function, the vibration sensor will not trigger the siren & it will not send out alarm SMS, but if the door is open or ignition is ON, it will trigger alarm normally.

Turn ON/OFF Sleep Mode.

111111SLEEP0   Turn off sleep mode, it is the default setting

111111SLEEP1   Turn ON sleep mode, it is used to save power & GPRS flow. In this working mode, if the engine is OFF, the system will go into sleep mode after 3 minutes. In sleep mode, the device only reports the heart-beating packet by GPRS, GSM & GPS module will go into power save mode also. Once there is any vibration, or alarm, or incoming call/SMS, the system will wake up immediately.

Check the IMEI No.

Command: 111111REG

This instruction is used to check the GSM module's IMEI number. Last 14 bits is tracker's GPRS ID.

Read the Odometer Value

111111ODO: It is used to read the present odometer value.

SOS Anti-robbery Alert

 We have two ways for anti-robbery alert.
(1) Press SOS button;
    once the SOS switch is pressed down & hold for at least 3 seconds, the system will send alarm SMS to the second alert-received mobile & the center number. User can send command 111111RES to release it.

(2) Press mute alarm button on the remote controller for several seconds; (The mute alarm button on the remote controller has two functions: One is for mute alarm, the other is for emergency help)

Set up Movement Alert

Command: **111111MOV@**
@ =0, to disable the movement alert;
@=1, to enable the movement alert;
@=?, to check the setting of movement alert.
   If user sends 111111MOV1 to enable the movement alert function, the movement alert centre is your tracker's current position. Every time when the system is armed, if the car moves away from the present parking point for about 90 meters(default setting), the movement alert will be triggered.
    User can change the radius of triggering movement alarm by this SMS command: **111111MOV:R** (R=50~999 meters).

Set up Over-speed Alert

111111SPD:<u>X</u>   x is the speed in KM/H , maximum value is 255M/H

   (For example: 111111SPD:120, if the car speed is over 120KM/H, it will send SMS to warn you)

111111SPD:0   to disable the over-speed alert. It is the default setting

When the over-speed alert function is activated, if the car is running over the speed limitation, the tracker will send out alert message.

Remark: this function is just for reference, because there might be some time delay or error in detecting the running car's real speed by GPS.

Set up Geo-Fence Alert

111111FEN0   Disable the Geo-fence

111111FEN1   Enable the Geo-fence, using the stored setting

111111FEN？   Check the setting of geo-fence

111111FEN1(YL:<u>a</u>,XL:<u>b</u>,DL:<u>C</u>)   Set up the all the parameters

111111FEN1(YL:<u>a</u>) Setup the latitude separately

111111FEN1(XL:<u>b</u>) Setup the longitude separately

111111FEN1(DL:<u>C</u>) Setup the radius separately

  YL:a,   a is latitude of the reference point

  XL:b,   b is the longitude of the reference point

  DL:c,   c is radius of latitude & longitude, the range of the value is (1-990), the unit is :<u>100 meters</u>. The range is 1~99000 meters.(0.1-99KM)

  Remark: (1) FEN, XL, YL,DL   must be in capital letter.

              (2) The Setting will be stored and used all the time.

Example: If the fence's center coordinate is: latitude:+23.1400, longitude:+113.4500, the radius is 5KM,   then the SMS instruction is:

  111111FEN1(YL: +23.1400,XL: +113.4500,DL:50) .

If the vehicle is running across the boundary of the fence, the system will automatically send out alert SMS.

Start the Engine Remotely by SMS

Command: **111111STR**

This instruction is used to start the engine by SMS. It is optional function, the starter must be connected correctly with the tracker, otherwise, it will not work.

Please send 111111STR to the device, the engine will start running,10 minutes later, it will stop automatically.

Change the Heart-beating Interval.

111111HRT:1~999

This instruction is used to change the time interval of heart-beating GPRS data package. The default setting is 3 minutes.

If the GSM networks do not detect the tracker's activities for a certain time, it will close the GPRS connection and the device will be offline. User can adjust the value so as to avoid this situation. Example: 111111HRT:5 (set time interval of hear-beating as 5 minutes)

III. The Setting for GPRS Connection

The GPRS setting is necessary for using the following 2 functions:
 (1) Check the car's real physical address by send 111111ADD
 (2) Online tracking service by web-based tracking platform

SMS format:

111111WWW:IPN(or DSN):X;COM:X;APN:apn,user,password;RPT:X;GPRS:X;

- IDN: The tracker's ID, it is the last 14 digits of IMEI which can't be changed.
- IPN(or DSN):The server's address. If it is IP address, please use IPN, if it is domain name, please use DSN instead.
- COM: The communication port for the GPRS server
- APN: The Access Point Name for the GSM SIM card.
- RPT: The interval for the uploading GPRS packet (Unit: sec.)
- GPRS: GPRS connection switch. (0= disconnected, 1=connected).

Example, if server is: www.51track.com, TCP port is <u>8500</u>, APN is <u>web.gprs,mtnnigeria.net</u>, apn user:<u>web</u>, apn password: <u>web</u>, time interval is <u>60</u> seconds, Then the command is:

111111WWW:DSN:www.51track.com;COM:8500;APN:web.gprs.mtnnigeria.net

,web,web;RPT:60;GPRS:1;

User can send one or more options at the same SMS commands, such as:

✧ **111111WWW:IPN:XXX.XXX.XXX.XXX;COM:XXXX;**

This is to set the server's IP address.
Eg: 111111WWW：IPN：98.143.144.145；COM:8500;
If user wants to use domain name as server, please use DSN instead of IPN
Such as: 111111<u>DSN:www.track800.com;</u>
If user wants to use UDP transmission, please use UDP instead of IPN
Such as: 111111WWW：UDP：98.143.144.145；

✧ **111111WWW:COM:XXXX;**

This is to set the server's COM port No.
Eg: 111111WWW：COM：8500；

✧ **111111WWW:APN:XXX;**

This is to set the APN (access point name). Please use "," to separate the APN, APN username & APN password.
Eg: 111111WWW：APN：web.gprs.mtnnigeria.net,web,gprs；

✧ **111111WWW:RPT:XXX;**

This is to set the upload time interval. The unit is second, the value is between <u>15-999</u> seconds.
The default setting is 0, the tracker will not upload data but GPRS is online.
Eg: 111111WWW：RPT：60；   (Upload time interval is every 60s)

✧ **111111WWW:GPRS:0/1；**

GPRS:0；   is to close down the GPRS;
GPRS:1；   is to open the GPRS.
Eg: 111111WWW：GPRS：1；(Open the GPRS connection)

Check the GPRS Settings

111111WWW: check the GPRS settings.

Default GPRS Setting

The default GPRS setting is:

- ✧ Server IP: www.track800.com
- ✧ Server Port:8500
- ✧ APN: internet
- ✧ GPRS report interval: 0
- ✧ GPRS connection: open

IV. Alarm Type

SOS Alarm

In any condition, if the SOS button is pressed down for 3 seconds. It will trigger SOS alarm. The 2nd alarm-received phone No. will get SOS alarm such as "Emergency help….." Several seconds later, your 2nd cell phone will receive call from tracker. However, this alarm will not cause relay to work. What's more, car horn will not sound.

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Vibration Alarm

In arming status, if the car is vibrated, the siren will sound & system will send out alarm SMS to inform user..

Power Failure Alarm

In arming status, if the external power supply(car battery) is cut off, it will trigger this alarm.

Engine ON Alarm

In arming status, if the car engine is turned ON, it will trigger this alarm. The siren will sounds for 20 seconds, and you will get alert SMS firstly & then two calls from system. the relay will cut off the engine at the same time.

-Door-Open alarm

In arm status, if the car door is open, it will trigger door open alarm. The siren will sounds for 20 seconds, and you will get alert SMS firstly & then two calls from system. the relay will cut off the engine at the same time.

Movement Alarm

In arming status, the movement alert is enabled automatically. Once the car moves away from the parking point for 90 meters, it will trigger this alarm.

Geo-Fence Alarm

Once the Geo-fence is activated, if the car/motorcycle oversteps the boundary, it will trigger this alarm.

Over-speed Alarm

If the car/motorcycle runs over the speed limitation, it will trigger this alarm.
(Remark: this function is just for reference, because there might be some time delay or error in detecting the running car's real speed by GPS.)

NOTE: the SOS alarm will only be sent to the 2nd phone & the GPRS tracking center, the other alarms will send to all the preset phone numbers & GPRS tracking center.

V. Specifications

Size of the main unit:	80*54*22 (mm)
Weight of the main unit:	0.09KG
Working temperature:	-20 ~ 70℃
Humidity:	0 ~ 95%
GSM frequencies:	Quad-band: (850MHz/900MHz/1800MHz/1900MHz)
GPS chip:	Ublox chipset
Working frequencies:	1575.42Mhz C/A（GPS）
Receiving sensibility:	-163dbm
Positioning accuracy:	≤15m (wide-open area)
Speed accuracy:	≤0.2M/S (wide-open area)
Positioning mode:	Auto 2D/3D

Working voltage:	10~45 VDC
GPS Position time:	Cold start: 60 seconds Warm start: 10seconds
Power Consumption:	Working current: 50mA; Peak current: 1000mA;
Inside Backup battery:	Rechargeable 3.7V 500mAh Li-ion battery

VI. FAQs & Troubleshooting

FAQ	Troubleshooting
The device can't recognize the car	(1) The device is wrong, please use correct device in list; (2) Backup switch is ON already, please turn off backup battery switch before installation, and turn on it after installation; (3) Some cars need to find the original car's CAN-H and CAN-L to connect. CAN Bus is twisted-pair, orange-blue line is CAN-H, brown-blue line is CAN-L. voltage is 2.5Votage. (4) OBD connector, some cars use PIN3 & PIN11, please refer to table of car's model;
When arm/disarm, the relay inside the unit has sound, but car door is not Locked/unlocked, siren & lights does not response	(1) some cars use CAN BUS to control, some cars use extra control lines to control lock/siren/lights, if so, the lock/unlock line, siren line and flight lines should be connected. (2) if you do not connect these extra lines, only relative functions can't be used, the other functions work well;
"Remote start the engine" not working	Please check the line of the hand brake switch is connected well.
I can not get the correct GPS coordinates or the location is wrong	(1) Please make sure there is no metal obstacles above the GPS antenna. Fix the GPS antenna to open place to test; (2) Please check the connection of the GPS antenna;

	(3) Chang another GPS antenna to test; (4) In cloudy condition, it is a little hard to get the GPS signal, and the GPS coordinate might have some errors.
I can check the location, but I can not get the alert SMS when the car moves	(1) Please setup the system firstly. (authorize SMS-received mobile number, etc); (2) In arming status,the device only warn you once the car moves at about 50 meters away from the parking place;
The voice is so tiny when monitoring voice	There is small hole which is used to pickup the voice, please do not block it.

VII. Maintenance

Suggestions
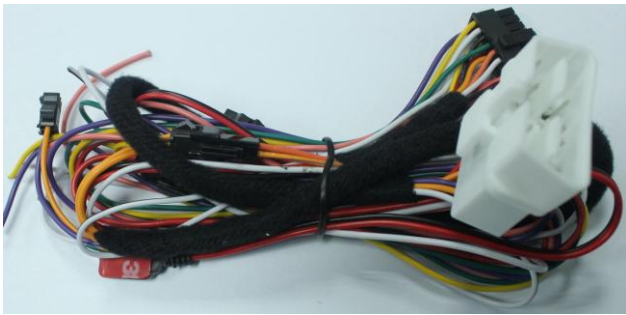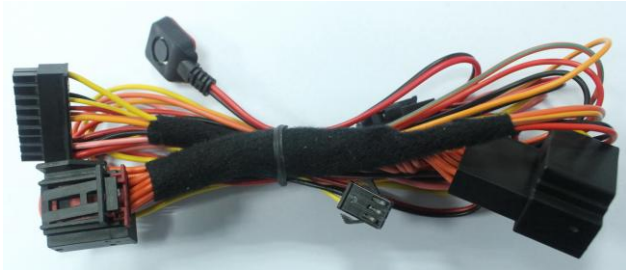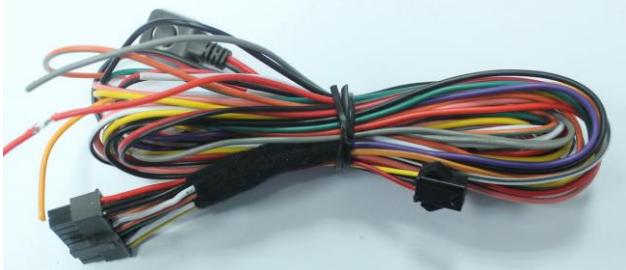
✧ Please let the professional to do the installation & maintenance of the GPS device. If there is any disassembling or repair without our permission, we keep no responsibility for any loss caused thereafter.

✧ Please keep the device in dry place. In case of soaking or leaking water, contact the local professionals. Do not start the car yourself, or we take no responsibility for any loss caused thereafter.

✧ When the car is inside buildings, cave, tunnel, or very close to tall buildings, it is normal that the device might not get GPS signal at that moment.

✧ Please check the balance of the tracker's SIM card periodically. If there is no credit in the SIM card, the device can't work normally.

✧ The backup battery. The backup battery can only work for a certain time when the car battery is temporarily powered off.

✧ If the device can't get GSM signal or GPS signal, please place it to another place to test.

VIII. Installation Guide

Before doing installation, please refer to the car model list, then select the correct main unit and correct wiring harness as following:

Please plug the unit into the OBD connector or special connector firstly, then turn on the switch, if the device's inside relay sound once, it means the unit is working the car. (Please do not turn on the switch firstly before connection, otherwise it can't recognize the car properly.)

Three Type of Wiring Harness

Name	Picture	Car's Models
OBD-II connector		For most cars with OBD connectors (please refer to the car list)
VW connector		For Volkswagen
Separated lines		For other cars without OBD connector

Installatoin of OBD-II Connector

Spare Lines: It can be cut off if there is no use

Yellow line(to relay's yellow line),to stop the car: negative output;

Purple line(to the switch of emergency light), negative output;

White line(lock door),to the lock button of the car door. negative output;

Black line(unlock door),to the unlock button of the car door. negative output;

Green line(to the switch of emergency light), positive output;

Orange line(control car's original horn).

The following car use CAN1, all the others use CAN2:

All series of Ford Auto

BYD: S6, F3, G6, M6

CAN2 Connector

Orange/green: CAN_H

Purple/yellow: CAN_L

CAN1 Connector

Purple/yellow: CAN_H

Purple: CAN_L

OBD Connector

ACC ON

Green   Green

Yellow   White

+12VDC

Relay

to engine starter
(red/black/yellow)

**Socket to
Main Unit**

SOS Button

About the Spare Lines：

Some car can't use CAN-Bus to control door lock, horn & lights, so the spare lines are used to realize these functions.

Once the OBD connector is plug in, the unit will sound once, it means that it recognize the car already. Pressing original remote will activate the horn & lights. If the door is locked/unlocked when arming/disarming by SMS, there is no need to connect spare lines;

If the light does not flash, please connect the purple/green line to the switch of double flash; If the horn does not sound, please connect the orange line to the car horn line; If door lock does not response, please connect the white/black line to the lock/unlock button of the car door;

The installation of spare lines is not necessary. It is just to realize stronger functions. If you don't connect spare lines, only the relative functions are not working, it will not affect the other basic functions.

Installatoin of VW Connector

This Harness is specially for installation on Volkswagen cars.
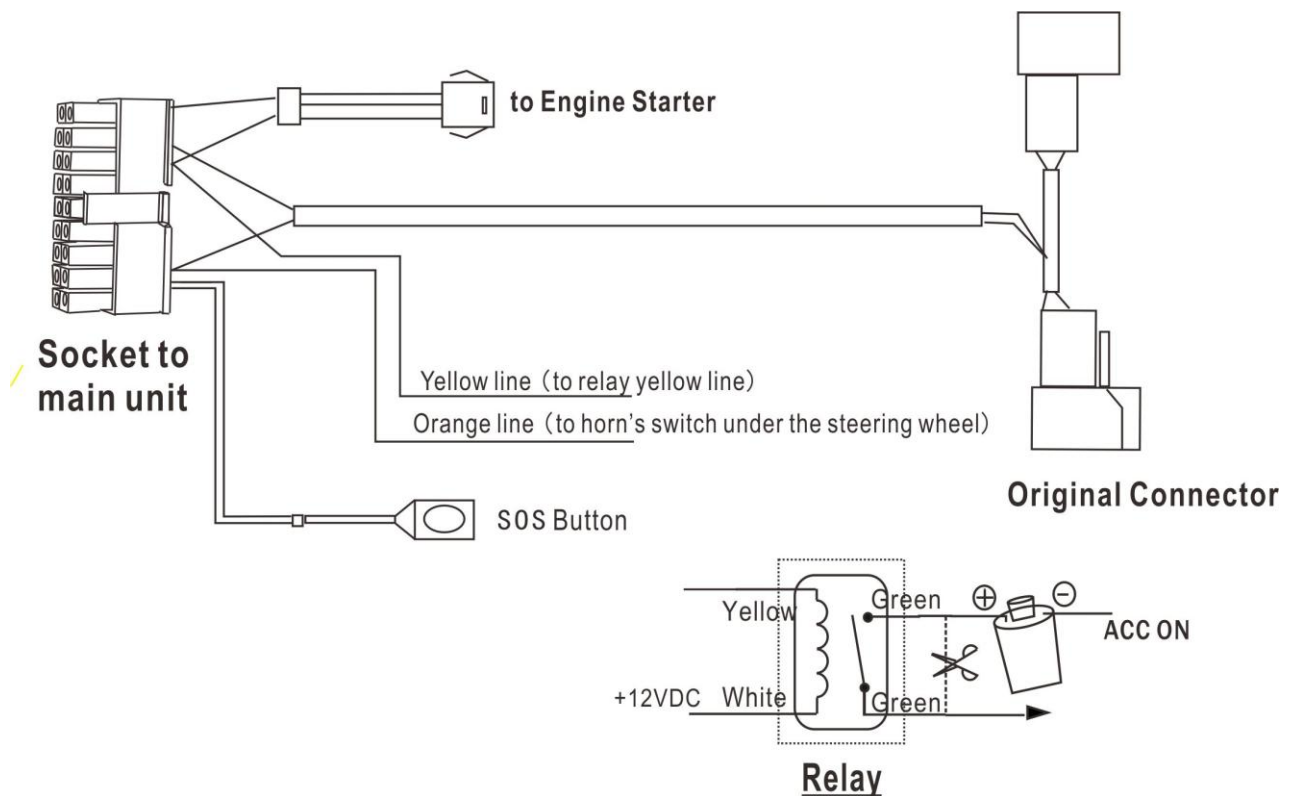
Installatoin of Separated Lines

The separated lines is for those cars which has CAN-BUS, but the connector is not the standard OBD connector.

Socket to main unit

Pin	Color
1	Purple
2	yellow
3	black/white
4	white
5	engine starter(yellow)
6	engine starter(black)
7	engine starter(red)
8	green
9	yellow/brown
10	orange/green
11	
12	Grey
13	Pink
14	
15	(SOS button)
16	
17	Red
18	Black

to Engine Starter

SOS Button

Socket to main unit

Yellow line(to relay's yellow line),to stop the car: negative output;
Purple line(to the switch of emergency light), negative output;
White line(lock door),to the lock button of the door. negative output;
Black/white line(unlock door),to the unlock button of the door. negative output;
Green line(to the switch of emergency light),positive output;
Pink line(control car's original horn);
Orange/green line, CAN_H, to car's CAN_H line;
Yellow/brown line, CAN_L, to car's CAN_L line;
Red line, +12VDC;
Black line, Ground;
Grey line,for future use, let it disconnected;